REMARKS

This amendment is filed in response to the rejection of January 16, 2009. In view of these amendments and remarks, this application should be allowed and the case passed to issue. No new matter is introduced by this amendment. The amendments to claims 1, 3, 5, 7, and 9 are supported in the specification at Table 1 and the accompanying portions of the specification. The average amount of retained austenite in the surface layer is obtained by determining the average values from ten test samples formed under the same conditions, as explained in the specification (page 29, lines 1-3).

Claims 1-10 are pending in this application. Claims 1-10 were rejected. Claims 1, 3, 5, 7, and 9 have been amended in this response.

Obviousness Type Double Patenting

Claims 1-10 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 7 and 8 of copending Application No. 10/570,345. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

A Terminal Disclaimer is being filed concurrently with this Amendment obviating the obviousness-type double patenting rejection.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-10 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the claim does not specify the standard used (e.g. ASTM, JIS, etc.) for determining the grain size number. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Claims 1, 3, 5, 7, and 9 have been amended to address the asserted informalities. In addition, a partial English translation of Japanese Industrial Standard G 0551, Methods of Austenite Grain Size Determination For Steel is attached to this Amendment. Applicants submit that the claims fully comport with the requirements of 35 U.S.C. § 112.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-10 were rejected under 35 U.S.C. § 102(e) as being anticipated by Ohki et al. (U.S. 2007/0151633). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Certified English translations of the Japanese Priority Documents JP Nos. 2004-004355, 2004-040031, and 2004-040085 are being filed concurrently with this Amendment. The filing dates of the priority documents are: 2004-004355 - January 9, 2004; 2004-040031 - February 17, 2004; and 2004-040085 - February 17, 2004. All the filing dates of the Japanese priority documents precede the September 30, 2004 PCT filing date of Ohki et al., U.S. Pat. Pub. No. 2007/0151633. Thus, Ohki et al. is not prior art to the present application.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamada et al. (US 2003/0063829) in view of Tajima et al. (US 6,488,789). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

The Examiner averred that Tamada et al. disclose a thrust needle roller bearing having a washer formed of a thin steel plate and a needle roller. The Examiner maintained that Tajima et al. disclose a rolling bearing in which the steel race portion is formed with a nitrogen enriched layer at a surface layer, an amount of retained austenite in the surface layer is 25%, and the

austenite grain size is set to 5 μm or less. The Examiner considered it obvious to modify the race surface of Tamada et al. to optimize the nitrogen content of the surface layer, the amount of retained austenite, as well as the grain size, as these variables are result effective variables.

The combination of Tamada et al. and Tajima et al., however, do not render the present claims obvious. Tamada et al. and Tajima et al. do not suggest a nitrogen enriched layer at a surface layer portion where an average amount of retained austenite in the surface layer portion is at least 8.2 volume % and at most 22.0 volume %, as required by claims 1, 3, 5, 7, and 9.

Tamada et al. do not disclose the amount of retained austenite in the steel of the roller thrust bearing. Tajima et al. disclose the residual austenite content is 25 to 50 vol.% in the surface layer part of the steel, which is obtained by carbonitriding the steel containing 0.8% to 1.2 wt.% of carbon, quenching at temperatures ranging from 830 to 870 °C, and tempering at temperatures ranging from 160 to 190 °C (see column 11, lines 1-8). Thus, even if Tajima et al. were combined with Tamada et al. in the manner asserted by the Examiner, and Applicants do not believe such a combination would have been obvious, the combination of Tamada et al. and Tajima et al. would not provide the claimed austenite content of at least 8.2 volume % and at most 22.0 volume %, as required by claims 1, 3, 5, 7, and 9.

The present invention provides unexpectedly improved thrust needle roller bearing life, as shown in Table 3. The claimed range of retained austenite in the surface layer can be obtained by the heat treatment method shown in Figs. 3 or 4, which includes secondary quenching. The Tajima et al. steel, on the other hand, is not secondary quenched, and therefore, the residual austenite content cannot be reduced to less than 25 volume %.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do

so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006); *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Tajima et al. to modify the bearing and support structure of Tamada et al. to provide a retained austenite in the surface layer of at least 8.2 volume % and at most 22 volume %, as required by claims 1, 3, 5, 7, and 9.

The only teaching of the claimed average amount of retained austenite in the surface layer is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

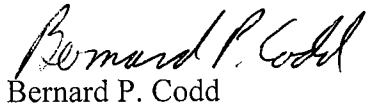
The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend and further distinguish the claimed bearing's component.

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Bernard P. Codd
Registration No. 46,429

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BPC:MWE
Facsimile: 202.756.8087
Date: April 16, 2009

Please recognize our Customer No. 20277 as our correspondence address.

JIS-1998

Partial English translation of Japanese Industrial Standard G 0551, Methods of Austenite Grain Size Determination For Steel

JIS

JAPANESE INDUSTRIAL STANDARD

Translated and Published by
Japanese Standards Association

JIS G 0551 : 1998

Methods of austenite grain size determination for steel

ICS 77.040.99; 77.080.20

Descriptors : austenitic steels, steels, ferrous metals, ferrous alloys, grain size

Reference number : JIS G 0551 : 1998 (E)

e) **fine grain steel and coarse grain steel** Steel with a grain size number equal to or greater than No. 5 shall be considered to be fine grain steel, and steel with a grain size number less than No. 5 shall be considered to be coarse grain steel. Unless otherwise specified, the distinction between fine grain steel and coarse grain steel shall be made, as a rule, by the testing method of carburized grain size specified in 5.

(f) **mixed grain** Mixed grain means the state of unevenly distributed grains with sizes varying from the grain size number having the maximum frequency to those generally equal to or larger than 3 in one visual field, wherein these grains take up approximately 20 percent or more of the total area, or there exists a visual field wherein may observed different grain size numbers of 3 and above.

Table 1 Grain Size Number

Grain size number G	Number of grain size per mm² m	Mean area of grain size mm²
−3	1	1
−2	2	0.5
−1	4	0.25
0	8	0.125
1	16	0.062 5
2	32	0.031 2
3	64	0.015 6
4	128	0.007 81
5	256	0.003 90
6	512	0.001 95
7	1 024	0.000 98
8	2 048	0.000 49
9	4 096	0.000 244
10	8 192	0.000 122

Remarks: The following formula is concluded in Table 1.

$$m=8\times2^{G}$$

Attached Fig. 1 is the reference charts of 100 magnifications, where this relationship is figured.

Classification of testing methods Testing methods and applicable types of steel shall be as described in Table 2. The procedures in Annex 1 shall be used when Bechot- Beaujard method which etches the sample with picric acid aqueous saturated solution in accordance with the agreement between purchaser and the supplier.